APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/751,955	12/29/2000	Pamela A. Binns	H16-25538	8564

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EXAMINER
SHAH, NILESH R

ART UNIT	PAPER NUMBER
2127	

DATE MAILED: 09/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _14 June 2004_.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under _Ex parte Quayle_, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-38_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-38_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _5/13, 12/29, 2/15,_.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   Claims 1-38 are presented for examination.

2.   Applicant cites an appendix throughout the specification (i.e. page 32 par 3.2).
As per section 608.05(a) of the MPEP, applicant is limited to what can be
placed in an appendix. Accepted materials for an appendix include a computer
program with a limited number of lines.

3.   If applicant feels current materials in appendix is needed in order to make
invention work then applicant is advised to place material within formal
drawings.

4.   Finally, any changes to current appendix would require entire specification to
be update.

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all
obviousness rejections set forth in this Office action:

    a.   A patent may not be obtained though the invention is not identically disclosed or described as
set forth in section 102 of this title, if the differences between the subject matter sought to be
patented and the prior art are such that the subject matter as a whole would have been obvious
at the time the invention was made to a person having ordinary skill in the art to which said
subject matter pertains. Patentability shall not be negatived by the manner in which the
invention was made.

6.   Claims 1- 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over

        Atlas et al ('Slack Stealing Job Admission Control) in view of Anderson et al

        (5, 448, 735) (hereinafter Anderson).

7.   Atlas et al and Anderson et al were cited in the last office action.

8.   As per claim 1 Atlas teaches the invention substantially as claimed including a

        multitasking system executing real-time harmonic and dynamic tasks, a

        method of scheduling tasks comprising (page 2 lines 45-47, page 4 lines 19,

        23-24, 36-37);

        assigning priority levels to tasks (page 4 lines 36-37);

        determining available slack for tasks at each priority level (page 2 lines 45-47,

        page 4 lines 19, 23-24, 36-37); and

        allocating slack to tasks in order of priority (page 4 lines 36-37).

9.   Atlas does not specifically teach the determinating step taking into account a

        task that is inactivating.

        Anderson teaches the use of taking into account tasks that are activating and

        inactivating (Fig. 17, col. 24 lines 4-15).

10.   It would have been obvious to one skilled in the art at the time of the

        invention to combine the teachings of Atlas and Anderson to ensure that a task

        can be activated or deactivated at anytime. By being able to activated or

deactivated a task the user can determine and use excess slack thus making the entire system more efficient.

11.   As per claim 2, Atlas teaches a method wherein tasks are scheduled according to a rate monotonic algorithm (page 7, lines 6-10, 29-33, page 8 lines 8-15).

12.   As per claim 3 Atlas teaches a method wherein a periodic high priority task can steal slack from available slack without impacting an execution deadline of a periodic low priority task (page 2 lines 45-47, page 4 lines 19, 23-24, 36-37).

13.   As per claim 4, Atlas teaches a method wherein determining available slack comprises:

determining slack consumed(page 2 lines 45-47, page 4 lines 19, 23-24, 36-37);

determining timeline slack (page 2 lines 45-47, page 4 lines 19, 23-24, 36-37);

determining reclaimed slack (page 2 lines 45-47, page 4 lines 19, 23-24, 36-37) and

determining idle time (page 2 lines 45-47, page 4 lines 19, 23-24, 36-37).

14.   As per claim 5, Atlas teaches a method wherein determining timeline slack comprises maintaining a table that is recalculated (page 2 lines 45-47, page 4 lines 19, 23-24, 36-37).

Anderson teaches the use of taking into account tasks that are activating and inactivating (Fig. 17, col. 24 lines 4-15).

15. As per claim 6, Atlas teaches a method wherein determining available slack comprises maintaining accumulators for slack consumed, reclaimed slack, and idle time (page 2 lines 45-47, page 4 lines 19, 23-24, 36-37).

16. As per claim 7 Atlas teaches a method wherein tasks have periods, and wherein maintaining the accumulators comprises updating the accumulators upon the occurrence of an event from the group consisting of when crossing a period boundary (page 2 lines 45-47, page 4 lines 19, 23-24, 36-37) when a task completes for period when executing on a fixed budget with slack to be reclaimed (page 2 lines 45-47, page 4 lines 19, 23-24, 36-37); when a processor executing the tasks transitions from idle to busy (page 2 lines 45-47, page 4 lines 19, 23-24, 36-37); when a task completes for period when executing on slack (page 2 lines 45-47, page 4 lines 19, 23-24, 36-37); and prior to calculating available slack for a new slack-consuming task (page 2 lines 45-47, page 4 lines 19, 23-24, 36-37).

17. As per claim 8, Atlas teaches a method wherein determining available slack comprises predecrementing accumulators to allow for overhead associated with allocating slack (page 2 lines 45-47, page 4 lines 19, 23-24, 36-37).

18.   As per claim 9 Atlas and Anderson do not specifically teach a method wherein

the multitasking system is a flight control system (page 2 lines 45-47, page 4

lines 19, 23-24, 36-37). However, it would have been obvious to one skilled in

the art at the time of the invention to have included a flight control system in

Atlas and Anderson's system because it will increase the field of use for

Anderson and Atlas's system.

19.   Claim 10 is rejected based on same rejections as stated in claim 1 above.

20.   Claims 11-19 are rejected based on same rejections as stated in claims 1-9
        respectfully.

21.   Claim 20 is rejected based on same rejections as stated in claims 1 and 4
        above.

22.   Claims 21-28 are rejected based on same rejections as stated in claims 1, 4, 2,
        5-9 respectfully.

23.   Claims 29-37 are rejected based on same rejections as stated in claims 1-9
        respectfully.

24.   As per claim 38, Anderson teaches a method wherein the multitasking system
        is a real-time control system (page one lines 40-44).

Response to Arguments

25.   Applicant arguments filed on 6/14/04 regarding claims 1-38 has been

considered but they aren't persuasive.

26.   In remarks applicant states (a) prima facia case of obviousness has not

established.

27.   Examiner respectfully disagrees with applicants argument: As per (a) the main

goal of both inventions is to improve the overall efficiency of the two systems.

Anderson teaches the need for an efficient means for task organization (col. 1

lines 24-29,col. 2 lines 51-55, and col. 3 lines 15-22). Atlas teaches the need

an efficient system (page 2 lines 1-10). It would have been obvious to one

skilled in the art at the time of the invention to combine the teachings of Atlas

and Anderson to ensure that a task can be activated or deactivated at anytime.

By being able to activated or deactivated a task the user can determine and use

excess slack thus making the entire system more efficient.

Conclusion

28.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension

of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire

THREE MONTHS from the mailing date of this action. In the event a first

reply is filed within TWO MONTHS of the mailing date of this final action

and the advisory action is not mailed until after the end of the THREE-

MONTH shortened statutory period, then the shortened statutory period will

expire on the date the advisory action is mailed, and any extension fee

pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the

advisory action. In no event, however, will the statutory period for reply

expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nilesh R Shah whose telephone number is 703-305-8105. The examiner can normally be reached on Monday-Friday 8am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng An can be reached on 703-305-9678. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

NS
August 23, 2004

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